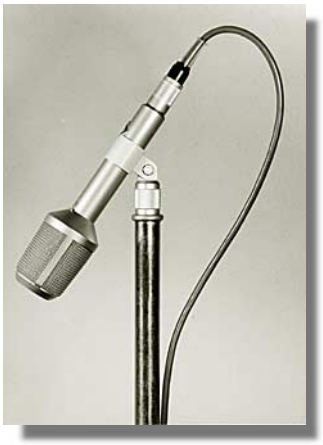
KM 66 - The Figure-8 for an Even Sound Field

Occasionally, by combining elements of existing products, previously unknown possibilities are discovered. One example of this in Neumann's product history is the KM 66, a switchable-pattern miniature microphone first produced in 1966.



In developing this microphone, Neumann combined two cardioid capsules from the KM 64 in a special way: the diaphragms face away from each other with a spacing of 10 mm; the backplates are separated by an elliptical divider. The result is a capsule combination producing excellent polar pattern characteristics, even in the extreme low-frequency range. Even at 40 Hz, the rear-to-front differential for each single capsule is 20 dB!

In an even (diffuse) sound field, no appreciable change in on-axis (0 degrees) response occurs when switching from omni to cardioid pattern. Also, when the backside capsule is added (for omni), there is less than a 10% increase in output voltage from the microphone.

In contrast, polar diagrams of typical dual-diaphragm microphones indicate that the reverse attenuation of the cardioid pickup pattern decreases remarkably towards the low frequencies. When the two capsule halves are activated at the same time, the backside part adds a much higher share of the whole signal. This generates an narrower figure-8 pattern in the low frequencies and an uneven response due to changes in distance.

In the KM 66, the cardioid and figure-8 patterns

feature an accurate representation of low frequencies, even in such a case where the microphone is used at a greater distance from the sound source. This near-ideal carioid capsule with its unique attributes is a great asset to other microphones utilizing it: the KM 64, U 64, KTM, KM 74 and the legendary KM 84.